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# An Evaluation System for Purebred Swine: Guidelines for Commercial Producers

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STAGES provides performance pedigrees, which document consistent performance testing and selection. Performance pedigrees allow STAGES participants to provide superior seedstock developed from generations of genetically superior ancestors. Identification of the truly superior seedstock (i.e., that which consistently improves pork production efficiency) is only possible when complete performance pedigrees are available.

## Performance Data Collection, Analysis, and Output

To participate in STAGES, the purebred producer collects basic performance information and submits it to his breed association for analysis. Only four measurements are required — (1) days to 230 pounds or average daily gain; (2) backfat thickness obtained on boars, gilts and barrows; (3) litter size; and (4) 21-day litter weight for all purebred sows with either purebred (registered and unregistered) or crossbred litters.

Complete herd testing is very important. Each individual will be more accurately evaluated with complete herd testing through the accumulation of additional information on relatives and larger contemporary group sizes.

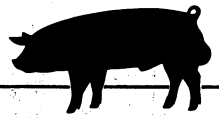
Once the performance information is submitted, the STAGES computer program adjusts the data for fixed effects (e.g., sex, age, parity, weight), calculates contemporary group averages, identifies data from relatives, and combines each individual's performance data with those from relatives to calculate the EPDs and indexes. The resulting output forms give a complete summary of the performance of each animal, its EPDs, and index values.

## Importance of Commercial Producer Support

The newly developed Swine Testing and Genetic Evaluation System now makes possible a more thorough and accurate evaluation of purebred swine herds. Selection of superior individuals based on STAGES analyses can accelerate the genetic improvement so important to efficient pork production. STAGES analyses will allow purebred producers to provide you with the most superior, predictable seedstock possible.

Commercial producers interest and support will ultimately determine the success of STAGES. Here's how you can show that support:

1. Before purchasing boars or gilts, identify purebred producers who are using STAGES to improve production efficiency;
2. Ask these seedstock producers to provide the performance pedigrees that document the selection history of their herds;
3. Then select individuals based on the STAGES analyses.



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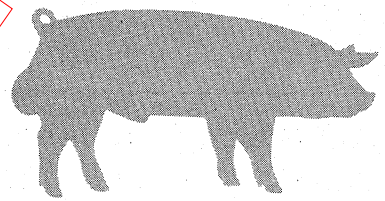
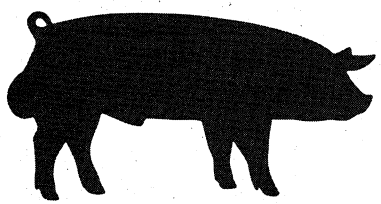
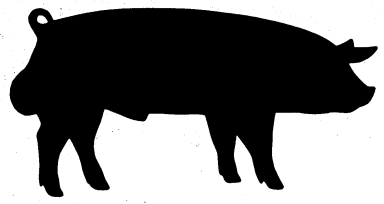


# Introducing —STAGES—

## An Evaluation System For Purebred Swine: Guidelines For Commercial Producers





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**Cooperative Extension Service**
**West Lafayette, Indiana**

**In cooperation with the**

**Agricultural Research Service**
**and Extension Service**
**U.S. Department of Agriculture**

# Introducing STAGES—An Evaluation System For Purebred Swine: Guidelines For Commercial Producers

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The pork industry continues to undergo dramatic changes. Profit margins are so small that only the most *efficient* commercial producers are likely to survive.

For you, efficiency means being able to produce quality pork at the lowest possible cost. In the past, such efficiency could be gained through improvements in the areas of housing, health, and nutrition. Most pork producers have already made cost-effective changes in these areas. So, from here on, your "efficiency edge" is going to be tied primarily to your animals' genetic potential for improved feed conversion, increased number pigs weaned, fewer days to market, and higher market value based on new carcass-value pricing programs. This is why commercial producers, like yourself, are more and more looking for reliable sources of consistently superior seedstock that will improve their production efficiency.

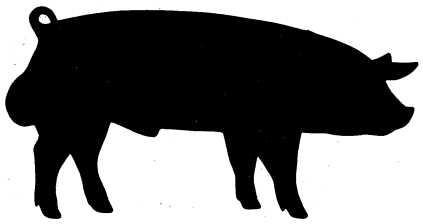
To meet this growing demand for superior seedstock, many purebred breeders are taking part in a new evaluation program to achieve more rapid genetic improvement. Called STAGES, (Swine Testing and Genetic Evaluation System), this comprehensive nationwide program allows participants to develop consistently superior seedstock, which gives their customers a distinct advantage over all other commercial producers.

## What STAGES Is and Does

STAGES is a series of computer programs that will analyze performance data provided by participating purebred producers. Developed at Purdue University, this is a cooperative project involving the USDA Agricultural Research Service and Extension Service, the National Association of Swine Records, the National Pork Producers Council, and the individual purebred associations. The data handling and analyses are done on the breed association computers.

STAGES has been implemented in six developmental steps. The system analyzes both reproduction and post-weaning traits, then combines the genetic evaluations for these traits into three alternative indexes — maternal, general, and terminal sire. It will also identify the top sires within each breed through its across-herd sire evaluation.

When all six steps are completed, STAGES will analyze records and evaluate on a national basis all tested individuals, including those in central station, barrow, and on-farm tests.



## What STAGES Provides the Seedstock Producer—and You

STAGES provides the most precise estimate of the genetic effects an animal will transmit to its offspring. Called expected progeny deviations (EPDs), these genetic estimates for sow productivity, growth rate, and backfat thickness, are based upon available individual, sibling, ancestoral, and progeny information.

STAGES provides more accurate genetic evaluations than past performance testing programs. Selection of the highest ranking individuals based on STAGES analyses allows more rapid, consistent genetic progress for economically important traits than all previous testing programs.

This genetic progress greatly improves commercial pork production efficiency. Assuming, conservatively, that only one-half the potential genetic progress is realized, selection based on STAGES will improve the profit potential of a medium-sized (1,000 hogs per year) farrow-to-finish producer by $37,500 after 10 years and $92,500 after 15 years.

STAGES provides the criteria for selecting purebred animals that will best improve the efficiency of commercial swine herds. Three alternative indexes — maternal, general, and terminal sire — are calculated. The maternal index places greater emphasis on reproductive performance than do the other indexes. The terminal sire index emphasizes post-weaning performance.

STAGES provides valuable information by documenting genetic worth. Because the indexes are stated in economic terms they can be used to identify the most valuable animals in terms of their effect on pork production efficiency.